(FILE 'HOME' ENTERED AT 09:10:17 ON 20 MAR 2002)

FILE 'CABA, CAPLUS' ENTERED AT 09:10:25 ON 20 MAR 2002

L1 157 S GRAPEVINE LEAFROLL VIRUS OR GRAPEVINE LEAFROLL-ASSOCIATED
VIR
L2 3842 S L1 AND TYPE 2 OR SERUM 2 OR VIRUS-2 OR VIRUS 2
L3 22 S L1 AND (TYPE 2 OR SERUM 2 OR VIRUS-2 OR VIRUS 2)
L4 16 DUP REMOVE L3 (6 DUPLICATES REMOVED)

L4 ANSWER 1 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 1
ACCESSION NUMBER: 2001:55464 CABA
DOCUMENT NUMBER: 20013035502
TITLE: Detection and partial characterization of a second closterovirus associated with little cherry disease, Little cherry **virus-2**
AUTHOR: Rott, M. E.; Jelkmann, W.
CORPORATE SOURCE: Federal Biological Research Center for Agriculture and Forestry, Institute for Plant Protection in Fruit Crops, Schwabenheimer Strasse 101, D-69221 Dossenheim, Germany.
SOURCE: Phytopathology, (2001) Vol. 91, No. 3, pp. 261-267. 48 ref.
ISSN: 0031-949X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Little cherry disease (LChD) is a complex and serious viral disease of cherry. Although originally described almost 70 years ago, there has been little progress in identifying the causal agent of the disease due to the difficulty in obtaining purified virus from infected trees. This problem was partially overcome in 1997 when the compete sequence of a closterovirus associated with LChD, Little cherry virus (LChV), was published. This virus could be associated with some, but not all, trees with LChD, indicating that another virus was also involved. We report here the partial characterization of a second closterovirus associated with LChD, Little cherry **virus-2** (LChV-2), and in order to differentiate the two LChD-associated viruses, we refer to LChV as Little cherry virus-1 (LChV-1). LChV-2 is a new closterovirus with molecular similarities to **Grapevine leafroll-associated virus**-1 (GLRaV-1) and GLRaV-3 but only distantly related to LChV-1. Based on limited sequence comparisons, LChV-2 is the same virus previously identified in association with LChD in Canada. In reverse transcription-polymerase chain reaction detection assays using specific oligonucleotide primers to either LChV-1 or LChV-2, 27 of 28 isolates of LChD tested positive to one or both of these viruses originating from Europe and North America. These results would further confirm the association of LChV-2 with LChD. One isolate, however, tested negative to both LChV-1 and LChV-2, indicating that while this report brings us a step closer to understanding LChD, further work is required to confirm the causal agents of LChD.

L4 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:671842 CAPLUS
DOCUMENT NUMBER: 135:355206
TITLE: Identification of a second closterovirus associated with little cherry disease, little cherry **virus 2**
AUTHOR(S): Rott, M. E.; Jelkmann, W.
CORPORATE SOURCE: Federal Biological Research Center for Agriculture and Forestry, Institute for Plant Protection in Fruit Crops, Dossenheim, D-69221, Germany
SOURCE: Acta Hortic. (2001), 550(Vol. 1, Proceedings of the 18th International Symposium on Virus & Virus-Like Diseases of Temperate Fruit Crops: Top Fruit

2000), 191-197
CODEN: AHORA2; ISSN: 0567-7572
PUBLISHER: International Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In 1997, the compete sequence of a closterovirus assocd. with little cherry disease (LCD), Little cherry virus (LChV) was detd. (Jelkmann et al., 1997). This virus could be assocd. with some, but not all, trees with LCD,indicating that another virus was also involved. The authors report here the partial characterization of a second closterovirus assocd. with LCD, little cherry **virus 2** (LChV-2) and have renamed LChV, little cherry virus 1 (LChV-1). LChV-2 is a new closterovirus with similarities to **grapevine leafroll viruses** 1 and 3, but only distantly related to LChV-1. Based on limited sequence comparisons, LChV-2 is the same virus previously identified to be assocd. with LCD in Canada (Eastwell, 1996). In RT-PCR detection assays using specific oligonucleotide primers to either LChV-1 or LChV-2, 27 of 28 isolates of LCD originating from Europe and North America tested pos. These results would further confirm the assocn. of LChV-2 with LCD. One isolate however, tested neg. to both LChV-1 and -2, indicating that further work is required to confirm the causal agent(s) of LCD.
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 2
ACCESSION NUMBER: 2002:498 CABA
DOCUMENT NUMBER: 20013001705
TITLE: Nucleotide sequence, genome organization and phylogenetic analysis of pineapple mealybug wilt-associated **virus-2**
AUTHOR: Melzer, M. J.; Karasev, A. V.; Sether, D. M.; Hu, J. S.
CORPORATE SOURCE: Department of Plant Pathology, University of Hawaii, Honolulu, HI 96822, USA.
SOURCE: Journal of General Virology, (2001) Vol. 82, No. 1, pp. 1-7. 38 ref.
ISSN: 0022-1317
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The genome of pineapple mealybug wilt-associated closterovirus-2 (PMWaV-2) was cloned from double-stranded RNA isolated from diseased pineapple and its sequence determined. The 3'-terminal 14861 nt of the single-stranded RNA genome contains ten open reading frames (ORFs) which, from 5' to 3', potentially encode a >204 kDa polyprotein containing papain-like protease, methyltransferase and helicase domains (ORF1a), a 65 kDa RNA-dependent RNA polymerase (ORF1b), a 5 kDa hydrophobic protein (ORF2), a 59 kDa heat shock protein 70 homologue (ORF3), a 46 kDa protein (ORF4), a 34 kDa coat protein (ORF5), a 56 kDa diverged coat protein (ORF6), a 20 kDa protein (ORF7), a 22 kDa protein (ORF8) and a 6 kDa protein (ORF9). A 132 nt untranslated region was present at the 3' terminus of the genome. This genome organization is typical of the monopartite closteroviruses, including the putative +1 ribosomal frameshift allowing expression of ORF1b. Phylogenetic analysis revealed that within the family Closteroviridae the mealybug-transmitted PMWaV-2 is more closely related to other mealybug-transmitted members than to those which are transmitted

by aphids or whiteflies. Within this group, PMWaV-2 shares the greatest sequence identity with **grapevine leafroll-associated virus-3**, another mealybug-transmitted closterovirus.

L4 ANSWER 4 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 3
ACCESSION NUMBER: 2001:28523 CABA
DOCUMENT NUMBER: 20003008663
TITLE: Properties of a new isolate of **grapevine leafroll-associated virus 2**
AUTHOR: Ghanem-Sabanadzovic, N. A.; Sabanadzovic, S.; Castellano, M. A.; Boscia, D.; Martelli, G. P.
CORPORATE SOURCE: Istituto Agronomico Mediterraneo, Valenzano, Bari, Italy.
SOURCE: Vitis, (2000) Vol. 39, No. 3, pp. 119-121. 17 ref. ISSN: 0042-7500
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new isolate of **grapevine leafroll-associated virus 2** (GLRaV-2-H4) was recovered by mechanically inoculating herbaceous hosts with concentrated tissue extracts from a North American accession of Vitis rupestris. Contrary to the Semillon isolate of GLRaV-2, isolate H4 elicited necrotic local lesions in Nicotiana clevelandii and infected systemically N. occidentalis inducing very severe symptoms. The migration rate of dissociated capsid protein of GLRaV-2-H4 in SDS-PAGE differed slightly from that of GLRaV-2-Sem. The coat protein sequence of GLRaV-2-H4 differed by about 12% at the nucleotide level from capsid proteins of the other two GLRaV-2 isolates that have been sequenced to date. No serological differences could be detected. Isolate H4 is a biological variant of GLRaV-2, which can be distinguished from other mechanically transmitted isolates of the same virus because of differences in type and reactions of the herbaceous host range and in molecular traits of the coat protein cistron.

L4 ANSWER 5 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 2002:23165 CABA
DOCUMENT NUMBER: 20013090349
TITLE: Determination of incidence of **grapevine leafroll associated viruses** in some grapevine varieties grown in Thrace region
AUTHOR: Koklu, G.; Baloglu, S.
CORPORATE SOURCE: Department of Plant Protection, Tekirdag Fac. of Agric., Trakya Univ., 59030, Degirmenalti, Tekirdag, Turkey.
SOURCE: Journal of Turkish Phytopathology, (2000) Vol. 29, No. 2/3, pp. 85-94. 35 ref. ISSN: 0378-8024
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: Turkish
AB A survey was conducted in Thrace region, Turkey, in 1997 and 1998 to determine the incidence of **grapevine leafroll associated viruses** (GLRaVs). A total of 421 individual grape samples were tested for infection of GLRaV 1, GLRaV 2, GLRaV 3 and GLRaV 7. GLRaVs were present in 268 out of 421 vines. The highest infection was by GLRaV 1 (37.05%), followed by GLRaV 3 (33.01%), GLRaV 2 (7.83%) and GLRaV 7 (4.03%). A total of 191 individual plants were infected by at least 1 virus, 68 by 2 viruses, and 9 by 3 viruses. The most common mixed infections were by GLRaV 1 and GLRaV 3.

L4 ANSWER 6 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 2000:149875 CABA

DOCUMENT NUMBER: 20001008743
TITLE: Sanitary status of table grape varieties recently introduced in Apulia
Stato sanitario delle varieta ad uva da tavola di recente introduzione in Puglia

AUTHOR: Digiaro, M.; Simeone, V.; Boscia, D.; Savino, V.
CORPORATE SOURCE: Istituto Agronomico Mediterraneo, Valenzano, Bari, Italy.

SOURCE: Informatore Fitopatologico, (2000) Vol. 50, No. 7/8, pp. 54-58. 17 ref.
ISSN: 0020-0735

DOCUMENT TYPE: Journal
LANGUAGE: Italian
SUMMARY LANGUAGE: English

AB Surveys were carried out in commercial vineyards in the main grapevine-growing areas of Apulia (southern Italy) over a three-year period (1997-1999) to assess the presence and the incidence of virus diseases in recently introduced table grape varieties. ELISA tests were performed for the identification of the following grapevine viruses: **grapevine leafroll associated viruses** -1, -2, -3, and -7 (GLraV-), grapevine vitiviruses A and B (GVA and GVB), grapevine fanleaf virus (GFLV) and grapevine fleck virus (GFkV). Widely spread leafroll and rugose wood symptoms were observed during field inspections. The presence of at least one of the above viruses was detected by ELISA in about 80% of a total of 1387 vines of 24 different varieties. GFkV and GLRaV-3 were the most widespread virus (58.5% and 56.2%, respectively), followed by GVA (32.2%) and GLRaV-2 (31.6%). Lower infection rates, ranging from 6.8% to 10.5% were detected for GLRaV-1, GFLV and GVB, whereas GLRaV-7 was almost absent.

L4 ANSWER 7 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 2000:120453 CABA
DOCUMENT NUMBER: 20001007759
TITLE: Ultrastructure of **grapevine leafroll-associated virus 2** and 7 infections

AUTHOR: Castellano, M. A.; Abou-Ghanem, N.; Choueiri, E.; Martelli, G. P.
CORPORATE SOURCE: Dipartimento di Protezione delle Piante e Microbiologia Applicata, Universita degli Studi and Centro di Studio del CNR sui Virus e le Virosi delle Colture Mediterranee, Via G. Amendola 165/A, I-70126 Bari, Italy.

SOURCE: Journal of Plant Pathology, (2000) Vol. 82, No. 1, pp. 9-15. 20 ref.

DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ultrastructural observations were carried out on cells of Nicotiana benthamiana infected with a new mechanically transmissible isolate of **grapevine leafroll-associated virus 2** (GLRaV-2-4H), Vitis rupestris infected with the same isolate, V. vinifera cv. Semillon infected with GLRaV-2 isolate Se, and an undetermined V. vinifera cultivar infected with **grapevine leafroll-associated virus** 7 (GLRaV-7). Regardless of the host, both viruses appeared to multiply only in the phloem, affecting the cytology of differentiating sieve tubes, parenchyma and companion cells. Both GLRaV2 isolates induced the same type of ultrastructural modifications in the herbaceous host and Vitis, consisting primarily of membrane proliferation, formation of inclusion bodies and virus particle aggregates. Inclusion bodies were made up of clusters of membranous vesicles with a fibrillar content, surrounded by a single

membrane, intermixed with loose aggregates of virus particles. The vesicles did not seem to derive from mitochondria in both GLRaV-2 and GLRaV-7 infections, thus setting a difference between these viruses and two other grapevine closteroviruses (GLRaV-1 and GLRaV-3) previously studied. Virus particles of GLRaV-2 and GLRaV-7 were plentiful and accumulated in the cytoplasm and nuclei of both Vitis species investigated.

L4 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:708922 CAPLUS
DOCUMENT NUMBER: 131:333046
TITLE: Protein and cDNA sequences encoding **grapevine leafroll virus** type 3 (GLRaV-3) proteins, and uses thereof for preparation of pathogen-resistant transgenic plants and detection of the pathogen
INVENTOR(S): Gonsalves, Dennis; Ling, Kai-Shu
PATENT ASSIGNEE(S): Cornell Research Foundation, Inc., USA
SOURCE: PCT Int. Appl., 84 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9955880	A1	19991104	WO 1999-US9307	19990429
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9937711	A1	19991116	AU 1999-37711	19990429
BR 9910057	A	20010109	BR 1999-10057	19990429
EP 1073753	A1	20010207	EP 1999-920144	19990429
R: AT, DE, ES, FR, IT, PT				

PRIORITY APPLN. INFO.: US 1998-83404P P 19980429
WO 1999-US9307 W 19990429

AB Disclosed are the proteins of **grapevine leafroll virus** type 3 (GLRaV-3), the nucleic acids encoding them, methods of prepg. transgenic plant resistant to GLRaV, and methods of detecting GLRaV by nucleic acid hybridization or immunoassay. The GLRaV-3 genome comprises 13 open reading frames, and the present invention discloses cDNAs encoding a polyprotein, a proteinase, a methyltransferase, a helicase, and an RNA-dependent RNA polymerase. Also described are a method of imparting grapevine leafroll resistance to grape plants by transforming them with the DNA mols., a method of imparting beet yellows virus resistance to a beet plant, a method of imparting tristeza virus resistance to a citrus plant, a method of imparting lettuce infectious yellows virus resistance to a lettuce plant, and a method of detecting the presence of a **grapevine leafroll virus**, such as GLRaV-3, in a sample.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 2000:56510 CABA
DOCUMENT NUMBER: 20001005240

TITLE: Production of antisera to **grapevine leafroll associated virus 2** and evaluation of the serological diagnosis of infected plants

AUTHOR: Koklu, G.

CORPORATE SOURCE: Trakya University, Tekirdag Agricultural Faculty Department of Plant Protection, 59030, Tekirdag, Turkey.

SOURCE: Journal of Turkish Phytopathology, (1999) Vol. 28, No. 3, pp. 119-131. 34 ref.
ISSN: 0378-8024

DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: Turkish

AB Many diagnostic methods can be used for the identification of plant viruses; ELISA techniques are widely preferred for their sensitivity, reliability, low cost and easy manipulation. Detection of **grapevine leafroll-associated virus 2** (GLRaV-2) in infected grapevine plants is difficult because of the low concentration of the virus and low immunogenicity of the available antisera used in serological tests. This study aimed to produce antisera from different sources and to compare these antisera for routine detection of GLRaV-2 infection. Two GLRaV-2 antisera were obtained by utilizing infected Nicotiana benthamiana leaves (USA-9) and grapevine phloem tissues (RG-40/5-9/22). USA-9 antiserum was more effective in detecting virus infection in grapevines. Two different labelling systems were used; one based on biotin, the other on alkaline phosphatase. More satisfactory and reliable results in virus detection were obtained with DASI-ELISA compared with DAS-ELISA.

L4 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:790661 CAPLUS
DOCUMENT NUMBER: 130:35576
TITLE: **Grapevine leafroll virus type 2** proteins, the encoding nucleic acids, use for preparation of pathogen-resistant transgenic plants and detection of the pathogen

INVENTOR(S): Zhu, Hai-ying; Ling, Kai-shu; Gonsalves, Dennis
PATENT ASSIGNEE(S): Cornell Research Foundation, Inc., USA
SOURCE: PCT Int. Appl., 151 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9853055	A1	19981126	WO 1998-US10313	19980520
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
ZA 9804232	A	19981201	ZA 1998-4232	19980519
US 6197948	B1	20010306	US 1998-80983	19980519
AU 9875831	A1	19981211	AU 1998-75831	19980520

EP 986641 A1 20000322 EP 1998-923568 19980520
R: AT, CH, [redacted] ES, FR, GR, IT, LI, PT, RO
BR 9809450 A 20020213 BR 1998-9450[redacted] 19980520
PRIORITY APPLN. INFO.: US 1997-47194P P 19970520
WO 1998-US10313 W 19980520

AB Disclosed are the proteins of **Grapevine leafroll virus type 2** (GLRaV-2), the nucleic acids encoding them, methods of prepg. transgenic plant resistant to GLRaV, and methods of detecting GRLaV by nucleic acid hybridization or immunoassay. The cDNAs encoding a polyprotein, an RNA-dependent RNA polymerase, a heat shock 70 protein, a heat shock 90 protein, a diverged coat protein, and a coat protein were isolated from GLRaV-2 and their amino acid sequences deduced. Also described are a method of imparting grapevine leafroll resistance to grape and tobacco plants by transforming them with the DNA mols., a method of imparting beet yellows virus resistance to a beet plant, a method of imparting tristeza virus resistance to a citrus plant, and a method of detecting the presence of a **grapevine leafroll virus**, such as GRLaV-2, in a sample.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L4 ANSWER 11 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 4
ACCESSION NUMBER: 1998:103001 CABA
DOCUMENT NUMBER: 981005320
TITLE: Nucleotide sequence and genome organization of **grapevine leafroll-associated virus-2** are similar to beet yellows virus, the closterovirus type member
AUTHOR: Zhu, H. Y.; Ling, K. S.; Goszczynski, D. E.; McFerson, J. R.; Gonsalves, D.
CORPORATE SOURCE: Department of Plant Pathology, Cornell University, New York State Agricultural Experiment Station, Geneva, NY 14456, USA.
SOURCE: Journal of General Virology, (1998) Vol. 79, No. 5, pp. 1289-1298. 41 ref.
ISSN: 0022-1317
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The entire genome of grapevine leafroll-associated closterovirus-2 (GLRaV-2), except the exact 5' terminus, was cloned and sequenced. The sequence encompasses 9 open reading frames (ORFs) which include, in the 5' to 3' direction, an incomplete ORF1a encoding a putative viral polyprotein and 8 ORFs that encode proteins of 52 kDa (ORF1b), 6 kDa (ORF2), 65 kDa (ORF3), 63 kDa (ORF4), 25 kDa (ORF5), 22 kDa (ORF6), 19 kDa (ORF7) and 24 kDa (ORF8), respectively, and 216 nucleotides of the 3' untranslated region. An incomplete ORF1a potentially encoded a large polyprotein containing the conserved domains characteristic of a papain-like protease, methyltransferase and helicase. ORF1b potentially encoded a putative RNA-dependent RNA polymerase. The expression of ORF1b may be via a +1 ribosomal frameshift mechanism, similar to other closteroviruses. A unique gene array, which is conserved in other closteroviruses, was also identified in GLRaV-2; it includes genes encoding a 6 kDa small hydrophobic protein, 65 kDa heat shock protein 70, 63 kDa protein of function unknown, 25 kDa coat protein duplicate and 22 kDa coat protein. Identification of ORF6 (22 kDa) as the coat protein gene was further confirmed by in vivo expression in E. coli and immunoblotting. Phylogenetic analysis comparing different genes of GLRaV-2 with those of other closteroviruses demonstrated a close relationship with beet yellows closterovirus (BYV), beet yellow stunt closterovirus and citrus tristeza

closterovirus. GLRaV-2 is the only closterovirus, so far, that matches the genome organization of the type member of the group, BYV, and thus can be unambiguously classified as a definitive member of the genus Closterovirus.

L4 ANSWER 12 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 1999:146753 CABA
DOCUMENT NUMBER: 991006286
TITLE: Viruses and virus diseases of grapevine in Tunisia
AUTHOR: Mahfoudhi, N.; Digiaro, M.; Savino, V.; Terlizzi, B.
di; di Terlizzi, B.
CORPORATE SOURCE: Istituto Agronomico Mediterraneo, Via Ceglie 23, 70010 Valenzano, Bari, Italy.
SOURCE: Bulletin OEPP, (1998) Vol. 28, No. 1/2, pp. 197-204.
27 ref.
ISSN: 0250-8052
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: French; Russian
AB The presence of viruses and virus-like diseases of grapevine in Tunisia was assessed. Detection was carried out using indicator plants and ELISA. ELISA showed that 96.4% of 669 vines tested were infected, most of them (88.1%) by at least 2 viruses. **Grapevine leafroll-associated virus** 3 (GLRaV-3) was the most widespread virus (87.9%), followed by grapevine virus A (GVA, 69.4%), grapevine fleck virus (GFkV, 51.9%), **grapevine leafroll-associated virus** 1 (GLRaV-1, 36.8%), **grapevine leafroll-associated virus 2** (GLRaV-2, 19.1%), grapevine fanleaf virus (GFLV, 18.2%) and grapevine virus B (GVB, 14.8%). The highest infections were found in Bizerte and Cape Bon regions (100 and 99.2%) and in vineyards aged over 20 years (98.5%) as compared with the younger ones (81.1%). Rootstocks in mother-plant plots were practically free from all the viruses tested (1 plant infected out of 81), whereas severe infections were found in Vitis vinifera mother plants (67.4% of 341 samples). Table grapes were more infected than wine grapes (92.6 and 47.9%, respectively). In these mother-plant plots, the prevailing viruses were GLRaV-3 (41.3%), followed by GFkV (36.7%), GVA (27.9%), GLRaV-1 (17%) and GLRaV-2 (15.2%). GFLV and GVB were far more limited (1.5 and 0.6%, respectively). The presence of vein necrosis and vein mosaic was determined by transmission onto 110R and Vitis riparia indicators. Only GFLV was mechanically transmitted onto herbaceous hosts (from about 20% of the samples).

L4 ANSWER 13 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 1999:146752 CABA
DOCUMENT NUMBER: 991006285
TITLE: Viruses and virus diseases of grapevine in Palestine
AUTHOR: Alkowni, R.; Digiaro, M.; Savino, V.
CORPORATE SOURCE: Istituto Agronomico Mediterraneo, Via Ceglie 23, 70010 Valenzano, Bari, Italy.
SOURCE: Bulletin OEPP, (1998) Vol. 28, No. 1/2, pp. 189-195.
20 ref.
ISSN: 0250-8052
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: French; Russian
AB Surveys were carried out in vineyards in the main grapevine growing areas of Palestine to assess the presence and incidence of virus and virus-like

diseases. Leafroll symptoms were observed in Bethlehem, Ramallah and Jerusalem in nati[redacted] and imported cultivars, with h[redacted]her rates in the red-fruited cultivars Shami, Beitoni and Smari. Ru[redacted]se-wood symptoms were observed in local and foreign cultivars, especially on grafted vines with a high incidence in Bethlehem. Fanleaf symptoms were rarely observed, while phytoplasma-induced symptoms were observed in Jenin, Jericho and Bethlehem on cultivars Biadi, Superior Seedless and Beitoni. ELISA tests showed that 463 out of 566 (82%) tested vines were infected by at least 1 virus. Grapevine virus A (GVA) was the prevailing virus (66.1%), followed by **grapevine leafroll-associated virus** 1 (45.6%), GLRaV-3 (21.7%), grapevine fleck virus (GFkV) (15.7%) and **grapevine leafroll-associated virus 2** (8.3%). Grapevine B virus (GVB) and grapevine fanleaf virus (GFLV) were also detected to a lesser extent. **Grapevine leafroll-associated virus** 7 was detected in a single vine of cultivar Sultanina of foreign origin. Vineyards in the Bethlehem area were particularly badly damaged (97.5%), with some local cultivars totally (Jandah, Marrawi and Shoyoukhi) or heavily infected (Zaini, Biadi and Shami). ELISA testing of 69 young rootstock mother plants showed a relatively high incidence of virus infection (20.3%). Vein necrosis and vein mosaic diseases were also detected on graft-inoculated 110R and Vitis riparia indicator plants, whereas no viruses other than GFLV were mechanically transmitted from about 200 vines onto inoculated herbaceous hosts.

L4 ANSWER 14 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 5

ACCESSION NUMBER: 1998:119813 CABA
DOCUMENT NUMBER: 981005583
TITLE: Some properties of **grapevine leafroll-associated virus 2** and molecular organization of the 3' region of the viral genome
AUTHOR: Abou-Ghanem, N.; Sabanadzovic, S.; Minafra, A.; Saldarelli, P.; Martelli, G. P.
CORPORATE SOURCE: Dipartimento di Protezione delle Piante, Universita degli Studi, Italy.
SOURCE: Journal of Plant Pathology, (1998) Vol. 80, No. 1, pp. 37-46. 47 ref.
DOCUMENT TYPE: Journal
LANGUAGE: English
SUMMARY LANGUAGE: Italian

AB Grapevine leafroll-associated closterovirus 2 (GLRaV-2) was purified from Nicotiana benthamiana. The molecular mass of viral coat protein subunits determined by polyacrylamide gel electrophoresis was c. 21.5 kDa. Double-stranded RNA was isolated from infected N. benthamiana and used for cloning and sequencing. Molecular probes and primers generated during cloning were successfully used for virus detection in infected grapevines by dot spot hybridization and reverse-transcription polymerase chain reaction. The sequence of the 3'-terminal 8590 nucleotides of the viral genome was determined, encompassing 8 open reading frames (ORFs). The first ORF consisted of 2 parts, ORF1a, which was incompletely sequenced and contained the conserved domains of virus helicases in its 3' region, and ORF1b, whose product (RNA dependent RNA polymerase) is apparently expressed via a + 1 ribosomal frameshift. The ORFs that followed in the 5'-3' direction, encoded proteins of 6 kDa (ORF2); 65 kDa (ORF3), identified as a homologue of cell heat shock proteins; 63 kDa (ORF4); 25 kDa (ORF5), identified as a diverged copy of the coat protein (CP); 22 kDa (ORF6) identified as the CP: 19 kDa (ORF7) and 24 kDa (ORF8). The structural organization of the genome was virtually identical to that of beet yellows closterovirus, the type species of the genus Closterovirus, and also resembled that of citrus tristeza closterovirus. This similarity was confirmed by comparative analysis of phylogenetically relevant proteins. GLRa V-2 has morphological, physicochemical, ultrastructural and

molecular properties that qualify it as a species in the genus Closterovirus.

L4 ANSWER 15 OF 16 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 97:13449 CABA
DOCUMENT NUMBER: 971000114
TITLE: Detection of two strains of **grapevine leafroll-associated virus 2**
AUTHOR: Goszczynski, D. E.; Kasdorf, G. G. F.; Pietersen, G.; Tonder, H. van; Goszczynski, D. E.; Kasdorf, G. G. F.; Pietersen, G.; Tonder, H. van; Van Tonder, H.
CORPORATE SOURCE: Plant Protection Research Institute, Agricultural Research Council, Pretoria, South Africa.
SOURCE: Vitis, (1996) Vol. 35, No. 3, pp. 133-135. 15 ref. ISSN: 0042-7500
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Two strains of grapevine leafroll-associated closterovirus 2 (GLRaV-2) were obtained by mechanical transmission from grape to Nicotiana benthamiana in South Africa. The strains, designated 94/970 and 93/955, consistently differed with regard to the development of symptoms. The first induced chlorotic and occasional white-necrotic local lesions, while the second induced chlorotic followed by metallic-opalescent, solid necrotic local lesions. The strains were indistinguishable with regard to the MW of their capsid proteins or serologically. A difference in the pattern of minor dsRNA bands was consistently observed.

L4 ANSWER 16 OF 16 CABA COPYRIGHT 2002 CABI DUPLICATE 6
ACCESSION NUMBER: 97:128241 CABA
DOCUMENT NUMBER: 971005926
TITLE: **Grapevine leafroll-associated virus 2** (GLRaV-2)- mechanical transmission, purification, production and properties of antisera, detection by ELISA
AUTHOR: Goszczynski, D. E.; Kasdorf, G. G. F.; Pietersen, G.; Tonder, H. van; Van Tonder, H.
CORPORATE SOURCE: Plant Protection Research Institute, Agricultural Research Council, Private Bag X134, 0001 Pretoria, South Africa.
SOURCE: South African Journal for Enology and Viticulture, (1996) Vol. 17, No. 1, pp. 15-26. 25 ref. ISSN: 0253-939X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Grapevine leafroll-associated closterovirus 2 (GLRaV-2) was transmitted from grape cv. Muscat d'Alexandrie to Nicotiana benthamiana following inoculation with a grapevine leaf petiole extract conc. by ultracentrifugation. Virus-infected N. benthamiana showed symptoms of chlorotic local lesions, systemic vein clearing followed by yellowing, stem necrosis and death of the plant. The plants were only infected with GLRaV-2. Antisera produced to GLRaV-2 strongly decorated particles of the virus in immuno-EM and clearly and specifically detected GLRaV-2 in conc. extracts of infected grapevines in Western blots. The antisera were used with success for the specific and sensitive detection of GLRaV-2 by ELISA.
Treatment of purified GLRaV-2 preparations with glutaraldehyde before immunization markedly improved the quality of the antisera.